

CLAIMS

1. An intervertebral prosthesis, which comprises a disc member dimensioned for insertion within an intervertebral space between adjacent vertebrae to replace at least a portion of an intervertebral disc removed therefrom, the disc member defining a longitudinal axis, the disc member including a substantially solid exterior wall having opposed longitudinal ends for positioning adjacent respective upper and lower vertebrae, the solid exterior wall having wall surface portions defining a helical slit therein extending therethrough continuously from a position adjacent the upper vertebrae to a position adjacent the lower vertebrae and being dimensioned to permit the exterior wall to elastically deform along the entire slit when subjected to a load.

2. The intervertebral prosthesis according to claim 1 wherein the helical slit extends along the longitudinal axis of the exterior wall from a position proximal one longitudinal end to a position proximal the other longitudinal end of the exterior wall.

3. The intervertebral prosthesis according to claim 2 wherein the disc member defines a median transverse axis equidistally disposed between the longitudinal ends, the helical slit extending from the position proximal one longitudinal end across the median transverse axis to the position proximal the other longitudinal end.

4. The intervertebral prosthesis according to claim 1 wherein the helical slit extends only about a portion of a periphery defined by the exterior wall.

5. The intervertebral prosthesis according to claim 1 wherein the inner surface portions of the exterior wall are arranged to define a continuous helical slit having at least one revolution about the longitudinal axis.

6. The intervertebral prosthesis according to claim 5 wherein the continuous helical slit is arranged about the exterior wall such that longitudinal displaced portions of the slit are in at least partial overlapping relation.

7. The intervertebral prosthesis according to claim 1 wherein the disc member includes an inner cavity defined within the exterior wall.

8. The intervertebral prosthesis according to claim 7 wherein the exterior wall defines an outer wall surface and an inner wall surface and wherein the helical slit extends from the outer wall surface to the inner wall surface in communication with the inner cavity.

9. The intervertebral prosthesis according to claim 1 wherein the disc member includes first and second support surfaces disposed at respective longitudinal ends of the disc member and dimensioned to supportingly engage respective upper and lower vertebrae.

10. The intervertebral prosthesis according to claim 9 wherein at least one of the first and second support surfaces defines an opening in communication with the inner cavity.

11. The intervertebral prosthesis according to claim 10 including an end cap at least partially positionable within the opening in the one support surface to substantially close the opening.

12. The intervertebral prosthesis according to claim 11 wherein the end cap includes an inner opening dimensioned to minimize rigidity of the end cap.

13. The intervertebral prosthesis according to claim 1 wherein the disc member is monolithically formed as a single unit.

14. An intervertebral prosthesis, comprising a disc member dimensioned for insertion within an intervertebral space between adjacent vertebrae to support the vertebrae in adjacent spaced relation, the disc member including a rigid substantially solid outer wall having wall surface portions defining a helical slit extending through the solid wall the solid outer wall and said slit subtending an angle greater than 360° relative to a central axis of the disc member.

15. The intervertebral prosthesis according to claim 14 wherein the disc member includes first and second support surfaces disposed at respective axial ends of the disc member and dimensioned to supportingly engage respective vertebral portions of the adjacent vertebrae.

16. The intervertebral prosthesis according to claim 15 wherein the disc member is monolithically formed as a single unit.

17. An intervertebral prosthesis comprising:
a generally kidney-shaped prosthetic disc member for insertion within an intervertebral space between adjacent vertebrae to replace at least a portion of an intervertebral disc removed therefrom, said disc member having upper and lower vertebral support surfaces connected by a substantially solid exterior wall, said exterior wall including a helical slit therein extending continuously from a position adjacent

the upper vertebral support surface to a position adjacent the lower vertebral support surface.

18. The intervertebral prosthesis as set forth in claim 17 wherein the upper and lower vertebral support surfaces are parallel and have a perimeter arcuate in shape defining an outer curvature.

19. The intervertebral prosthesis as set forth in claim 17 wherein said exterior wall and said slit extends around a central longitudinal axis through said upper and lower support surfaces.

20. The intervertebral prosthesis as set forth in claim 19 wherein said continuous helical slit making at least one revolution about the longitudinal axis.